



# New Source Permitting and HAP's

NR 445 Technical Advisory Work Group  
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Steve Dunn, Engineer, WDNR  
Bureau of Air Management  
(608) 267-0566  
[dunns@dnr.state.wi.us](mailto:dunns@dnr.state.wi.us)



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# NSR Program

- ◆ Contained in chs. NR 405, 406 & 408, Wis. Adm. Code
- ◆ Ch. NR 405 - Prevention of Significant Deterioration (PSD)
- ◆ Ch. NR 406 - General Construction Permitting
- ◆ Ch. NR 408 - Non-attainment Area Permitting



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# Ch. NR 405 - PSD

- ◆ Federal Program
- ◆ Wisconsin is SIP delegated
- ◆ Applies only to pollutants emitted in areas which are in attainment for those pollutants
- ◆ Designed to:
  - ◆ prevent air quality deterioration in “clean” air areas
  - ◆ place up-to-date emission controls on new or modified units



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# Ch. NR 406 - Construction Permitting

- ◆ Provides exemptions from the requirement to obtain a construction permit
- ◆ Two types of exemptions
  - ◆ Specific (examples)
    - ◆ small combustion units
    - ◆ chlorination of drinking water
    - ◆ small emergency electric generators
  - ◆ General
    - ◆ Keyed to emission rates
    - ◆ Exempt from MACT, NSPS, NR 445,...



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# Ch. NR 408 - Non-attainment area permitting

- ◆ Applies to facilities impacting or in non-attainment areas
- ◆ Establishes review procedures and standards for these sources



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# Permitting NR 445 Sources

- ◆ NR 445 applicability evaluated
- ◆ Two “types” of NR 445 pollutants
  - ◆ Table 1, 2, 4 & 5 pollutants
    - ◆ Have an acceptable ambient concentration and regulated on a “facility-wide” basis
  - ◆ Table 3 pollutants
    - ◆ No acceptable ambient concentration and regulated on a process-by-process basis



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# NR 445 reviews

- ◆ Table 1, 2 4 & 5
  - ◆ Determine the maximum theoretical emissions rate (MTE) for all HAP's emitted from the new or modified source(s)
  - ◆ MTE is:
    - ◆ The maximum emission rate of a HAP which may be seen at maximum operation with worst-case assumptions, including reasonable operating scenarios



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# NR 445 reviews

- ◆ If MTE less than NR 445 threshold, then the review is complete
- ◆ If the MTE is greater than an NR 445 threshold, then the review is continued



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# NR 445 reviews

- ◆ Calculate the **potential to emit (PTE)** for the facility
- ◆ PTE includes **enforceable** emission restrictions such as:
  - ◆ control equipment
  - ◆ limits on raw material usage
  - ◆ limits on production rates or hours of operations



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# NR 445 reviews

- ◆ PTE for each HAP is compared to the NR 445 Table value for that HAP
- ◆ If PTE is less than Table values, then the review is complete
- ◆ If PTE is greater than Table values, then dispersion modelling is needed to demonstrate compliance with ambient air concentration limitations



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## NR 445 Reviews - Table 3

- ◆ The review is done as follows:
  - ◆ estimate the PTE of each Table 3 compound from the new source only
  - ◆ If the PTE is at least 10% of the Table value for the HAP, proceed with the review. If less than 10%, then the review is complete
  - ◆ 10% chosen based on the BACT “hierarchy” in NR 445.04(3) emission limit language



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## NR 445 - Table 3

- ◆ If PTE exceeds the Table value, then:
  - ◆ The source agrees to limit actual emissions to less than the Table value for the facility or less than 10% of the Table value for the process, or
  - ◆ BACT or LAER is applied to the new emission source
- ◆ The rest of the facility is not required to be addressed in the construction permit, but may be, based on reviewer discretion



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## NR 445 Table 3

- ◆ If emissions from the new source are greater than 10% of Table value and less than the Table value, then:
  - ◆ Determine actual emissions from the entire facility
  - ◆ If emissions are less than the Table value, then the review is complete
  - ◆ If greater than the Table value, then the same procedure as previously outlined is used for the entire facility



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# MACT

- ◆ MACT comes in two varieties
  - ◆ new source MACT
  - ◆ existing source MACT
- ◆ The definition of new source and existing source MACT is different, but the Standards are not necessarily different



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# MACT

- ◆ Two types of MACT reviews for new sources
  - ◆ MACT reviews for facilities which have promulgated MACT Standards
  - ◆ MACT reviews for facilities which do not have a promulgated MACT Standard
- ◆ If MACT Standard exists, then it is incorporated into the permit for the new source



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# MACT

- ◆ If no MACT Standard exists, then:
  - ◆ If the new source **alone** is not a major HAP source, then no MACT requirements are placed in the permit (no MACT Standard applies)
  - ◆ If the new source alone is a major source, then a case-by-case MACT review is completed under s. 112(g) of the CAAA
  - ◆ The Department is delegated to implement the 112(g) program through its permitting authority



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# MACT

- ◆ New sources are not necessarily subject to new source MACT
- ◆ Applicability of new source or existing source MACT is defined in the relevant MACT Standards
- ◆ Many MACT Standards are written to minimize the number of modified facilities which are subject to new source MACT



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# NR 445 & MACT

- ◆ Facilities may be MACT and NR 445
- ◆ Will examine three cases for MACT and NR 445
  - ◆ The new facility and all HAP emissions are entirely MACT
  - ◆ The new facility is MACT and NR 445
  - ◆ The new facility is not subject to/exempt from MACT



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# NR 445 and MACT

- ◆ Entirely MACT New facility
  - ◆ All processes and HAP's are subject to MACT. No NR 445 HAP's that are not also 112(b) HAP's present. **Existing or new source MACT**
  - ◆ HAP emissions are NOT subject to NR 445
  - ◆ Likely examples:
    - ◆ Very large bulk terminals
    - ◆ Chrome electroplaters
    - ◆ Dry Cleaners



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# NR 445 and MACT

- ◆ New facilities and processes which are MACT and NR 445
  - ◆ Processes which are **entirely MACT** are not subject to NR 445 requirements, including:
    - ◆ BACT or LAER controls
    - ◆ Ambient air concentration limitations
    - ◆ **Having their emissions counted in any ambient air concentration limitation evaluation**



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# NR 445 and MACT

- ◆ New Units which are MACT for Federal HAP's and also emit NR 445, non-Federal HAP's
  - ◆ Subject to MACT for all Federal HAP's
  - ◆ Subject to NR 445 requirements for all NR 445, non-Federal HAP's
    - ◆ Subject to BACT/LAER for non-Federal HAP's
    - ◆ Subject to ambient air concentration limitations
    - ◆ Included in emissions totals for non-Federal NR 445 HAP's only



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# NR 445 and MACT

- ◆ Emit NR 445 HAP's and in a MACT category, but not subject to MACT
  - ◆ Examples:
    - ◆ small bulk terminals
    - ◆ other smaller operations
  - ◆ These facilities are subject to NR 445 requirements for all NR 445 HAP's



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# NR 445 and MACT Cases

- ◆ Case 1
- ◆ Facility A is a new source which emits large quantities of toluene and benzene (both Federal and State HAP's) and Facility A's emissions of Federal HAP's are subject to MACT
- ◆ Result: NR 445 is not applicable to the benzene and toluene emissions from this facility



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# NR 445 and MACT cases

- ◆ **Case 2**
- ◆ Facility B emits toluene from processes 1, 2 and 3. Process 3 is a **new source** which is subject to a MACT Standard for toluene, processes 1 and 2 are existing sources
- ◆ **Result:** Toluene emissions from processes 1 and 2 **ONLY** are totaled and compared to the NR 445 Table value and used to model the ambient air impact of the facility



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# NR 445 and MACT Cases

- ◆ Case 3
- ◆ Facility C is a new source which emits toluene (Federal HAP) and acetic acid (NR 445 HAP, not a Federal HAP) from its facility which is covered by a MACT Standard for Federal HAP's
- ◆ Result: The emissions of toluene are ignored for NR 445 purposes and the acetic acid emissions are evaluated under NR 445



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# NR 445 and MACT Cases

- ◆ Case 4
- ◆ Facility D is a new source which emits benzene and is in a MACT category, but does not have sufficient HAP emissions to be subject to the MACT Standard
- ◆ Result: Facility D's benzene emissions are subject to NR 445 requirements including LAER if emissions exceed the Table value



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# NR 445 and MACT - Summary

- ◆ MACT applies whenever a MACT Standard exists and is applicable to a new facility/emissions unit. NR 445 does not apply to Federal HAP emissions from such sources. **This includes totaling emissions for comparison to NR 445 Table values**
- ◆ NR 445 applies in all cases where a facility or a specific State-only HAP is not subject to a MACT Standard